White-collared Ladybird
(*Hippodamia variegata*)
and friends

METAMORPHOSIS

AUSTRALIA

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A quarterly meeting is scheduled in order to plan club activities and the magazine. See BOIC Programme.

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Membership fees are $30 for individuals, schools and organizations.

Aims of the Organization

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

Magazine Deadlines

If you wish to submit an item for publication the following deadlines apply:
March issue – February 1st June issue – May 1st
September issue – August 1st December issue – November 1st
All articles should be submitted directly to the Editor daphne.bowden1@bigpond.com

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Cover Painting

White-collared Ladybird (*Hippodamia variegata*) – Painting by Lois Hughes

EDITORIAL

28 October 2015
Dear BOIC Secretary,
After careful consideration please accept this as written notice of my resignation as the president of the Butterfly and Other Invertebrates Club effective immediately. My work commitments have escalated in the last six weeks and look set to continue for some time. As a result, I do not feel I can give the club the time and energy that it needs from a president. I would welcome continuing to be a member and participating in club activities but think it best to allow a person with suitable time and energy to work on improving the running of the club. I wish the club well in its future and thank those members of the committee that gave me support particularly in the start of my role.
Regards Marie-Louise

We sincerely thank Marie-Louise for her time and efforts as President and hope to see her at club excursions in the future when time permits. It was decided at our November meeting that the committee will share the role across its members until a new president is elected at our AGM in April 2016.

Our final magazine for 2015 is, as always, full of information about the small creatures that fascinate and amaze us. From Ladybirds to Moths, Stick Insects to Beetles, and plants that are home to them, I know you will find plenty of interest amongst our articles.

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Story of a New Ladybird – *Bernard Franzman*

This ladybird is common in backyards in south-east Queensland.

I found it at Gatton in 2000. There were quite a few of them feeding on aphids in a sorghum crop.

I hadn't seen them before and so I was very excited. I thought it might be *Hippodamia convergens*, which is a very important aphid predator in crops in the USA. A few days later it was confirmed by CSIRO that it was *Hippodamia variegata.* This was a new ladybird in Australia.

I contacted colleagues and looked further afield, and within a few months we confirmed that it had spread across the Darling Downs. Within a year it had been found from Emerald in the north to Griffith in the south and had reached Perth a year later.

Some interesting things

It is very common in Europe where it is an important bio-control agent in many aphid/crop situations. Seeing its potential the United States Department of Agriculture, between 1987 and 1993, introduced half a million individuals in an attempt to establish it as a bio-control agent against some of their aphid pests. After 10 years, it still had not established. However here it was established in Queensland without anyone trying!!

Both the adults and juveniles are voracious feeders on many aphid species. Adults can eat about 200 aphids a day for 8-9 weeks and the larvae consume 600-800 aphids, before pupating about 8-10days after hatching

They don't seem to like hot weather and become scarce in mid summer but start activity earlier in the spring than many of the other common predatory ladybirds in the area.

Some funny things

The TV program "Totally Wild" wanted to do a segment on the new ladybird. About the same time I had found another new natural enemy of aphids – the little parasitic wasp *Lysephlebus testaceipes* – so they decided to combine them in one story. We put both aphid killers in one dish to get them on camera together and the ladybird immediately jumped on the wasp and ate it! A rather exaggerated example of the possible dangers of introductions of biological control agents.

White-collared Ladybird (*Hippodamia variegata*) – Photo K. Power

We had to find a common name to be used for this new ladybird in Australia. In England, it is called the Adonis Ladybird. In the USA, it is called the Variegated Ladybird, which seems like a good common-sense idea. However in Australia we have the Variable Ladybird (*Coelophora inaequalis*) and so confusion may arise. At one stage, I suggested to colleagues that because it has a nice orange colour, like the colour of the rising sun, we maybe should call it the Dawn Ladybird and it just so happens that my wife's name is Dawn. Anyway I was only kidding, but for a while it was known amongst some people as the Dawny Bird. Ultimately we named it the White-collared Ladybird for its distinctive white margin on the plate behind the head.

References:
Franzmann, B.A. (2002). *Hippodamia variegata* (Goeze) (Coleoptera: Coccinellidae), a predacious ladybird new in Australia. Australian Journal of Entomology, 41: 375-377.
Franzmann, B., Wilson, L. and Smith, T. (2002). Two new bio-control agents for cotton aphid. Proceedings of the 11th Australian Cotton Conference, 329-333.

ITEMS OF INTEREST

Safe Sex for Insects – *Densey Clyne*

If you're going to be a male in this world, it's best to be a human one. Human males, traditionally providers and protectors, evolved to be physically bigger, stronger and more aggressive than females. But in the immensely larger world of the insects the roles and the rule are often reversed because it's the female who protects and nurtures the young. Female insects live longer and are usually larger than their mates. During mating, many simply get on with what they were doing before, paying no heed to the smaller male. He may be dragged around in a most unseemly way, yanked backwards and scrabbling for purchase with his feet. Like a reluctant husband taken shopping!

Photo 1 *Pterapotrechus* sp. gryllacrididis mating

For a male gryllacridid mating involves a series of violent, shudders, adding to his precarious situation and perhaps hers as well. But the female, claws firmly embedded in a branch, gives him every support. They'll hang about like this for several hours, perhaps all night.

Photos 2 and 3 – All very interesting, but "what's a gryllacridid?" you might ask. Answer, it's an insect, a kind of tree cricket and there are a number of different species. The name's a combination of two words meaning cricket and grasshopper. They share characteristics of both.

Photo 2 *Arolla* sp. gryllacridids mating at Turramurra

Photo 3 A gryllacridid from Kinchega National Park

Question is, what's in this risky procedure for the male – does the element of danger spur him on? Who knows.

The male's sperm is passed over to the female in a globular, gelatinous capsule (spermatophore) that remains attached outside her body. It has a particular purpose. When the insects part company the female will stay where she is for some time, slowly consuming the presumably nourishing capsule while the sperms continue safely on their journey. Meanwhile the successful male will be long gone, perhaps in search of another female to hang around with.

Photo 4 mantids mating – For many male insects mating is a death-defying business, especially among predatory species. The female mantis's habit of reaching back to bite off her mate's head is well known. It helps if he's too small to reach. Otherwise it's a case of keeping a low profile. Amazingly, even if the worst happens, he's able to finish the job of insemination *sans caput.* But eventually he becomes a source of protein for the female in the development

Photo 4 I've got my eye on you

of her offspring. If he's lucky enough to survive, it will be only to continue his game of Russian Roulette.

For some insects there's simply no such thing as safe sex. The males of honeybees, and other social bees that win the aerial race to mate with a new queen, die immediately afterwards, often killed by the very act itself. They are expendable once they've passed on their genes. The few females that survive the night's activity fulfil their destiny as long-lived queens producing the new generations of their kind.

Photos 5, 6, 7 – In a few insect groups the female is smaller than the male. For instance, female flower wasps are often small by comparison with their mates, and there's good reason. They're dependent on the superior strength and flying skills of their partners. A female flower wasp emerges totally wingless from her pupation underground, climbs the nearest plant, and sends out a scented call sign, a sex pheromone. Down comes a fully winged male, scoops up his little mate and in mid-air, the female dangling precariously below, they join the insect equivalent of the Mile-high Club. Later the male wasp simply drops his consort in mid-flight. No matter. Insects are lightweight and she reaches the ground unharmed, to tunnel underground and lay her eggs on living beetle grubs.

Photo 5 Steel Blue Flower wasps mating

Photo 7 Thinnid Flower Wasp – male

Photo 6 A female Thinnid Flower Wasp waiting for a lift

Photo 8,9 – Beetles mating – Speaking of beetles the business of mating may not always be life-threatening but some males simply find it hard to get on top of the subject. Shiny dome-shaped female beetles are difficult to mount and the females don't help. An amorous beetle must first scale the slippery slope of his ladylove. A frustrated male will slip and slither behind his wobbling, bobbling and seemingly uninterested mate until he gets a precarious purchase, and even then she'll try to shake him off.

Clearly, persistence wins the day, because it has been estimated that one in every four land animals on Planet Earth is a beetle …

Photo 8 *Anaplognathus* sp. Scarab beetles mating

Photo 9 Punctate Flower Chafer, *Polystigma punctata,* mating in *Angophora hispida*

Photos Densey Clyne

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Life history notes on the Hairy Line-blue, *Erysichton lineata lineata* (Murray, 1874) Lepidoptera: Lycaenidae – *Wesley Jenkinson*

The Hairy Line-blue is encountered rather sporadically from north-eastern Queensland southwards to central coastal New South Wales. It is known from coastal, sub-coastal regions and along the Great Dividing Range. The species is locally common in south-eastern Queensland.

The generally preferred habitats are tropical, subtropical and littoral rainforest, as well as dry vine scrub, and also in suburban gardens in south-eastern Queensland where the host trees are growing.

The females can be observed flying in dappled sunlight within forested areas searching for host trees. They frequently settle within a few metres above ground level. The males fly at the outer canopy and fly more rapidly than the females. They typically settle on the outer foliage of trees with their head slightly angled downwards

with wings closed deflecting the sunlight. They are very territorial and quickly chase off other rival males and small lycaenids. In my garden, the females appear to be observed more regularly feeding at flowers than do males. While feeding, the wings remain closed and occasionally the hind wings are slightly alternated up and down. Unlike many lycaenids, this species rarely bask with their wings open. During hot days the adults of both sexes can also be observed imbibing moisture from the ground. On one occasion, I saw a male imbibing froth from a spittlebug on a Melaleuca tree.

The sexes are dimorphic, being very different in appearance.

Wingspans for the pictured males are 20mm and 23mm for the females.

Erysichton lineata lineata (Hairy Line-blue)
Images left to right: male, female, male underside, female underside

Several host plants in the families Boraginaceae, Malvaceae, Myrtaceae, Proteaceae and Sapindaceae are listed in Braby 2000 and Moss 2010. The larvae feed on the juvenile leaves, buds and flowers.

During May in 2009, a female was observed ovipositing on a young flower bud of a Tuckeroo Tree (*Cupaniopsis anacardioides*) in my garden. She typically flew slowly throughout the host tree branches and settled in a sheltered position. She then walked around for a short period and curled her abdomen onto the base upperside of a flower bud and laid a single egg. This egg was kept for life history studies. I have observed females ovipositing during late morning to mid afternoon in sunny conditions.

This tiny egg was white, mandarin shaped with raised small rounded projections, approximately 0.3mm high x 0.5mm wide.

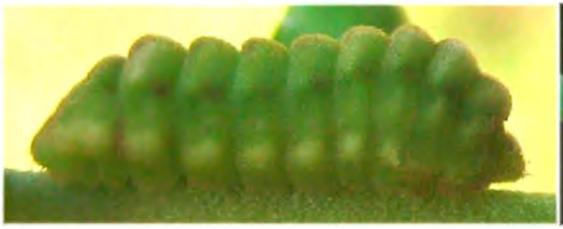
Freshly laid egg of *E. lineata*

1st instar larva

2nd instar larva

3rd instar larva

4th instar larva



5th instar larva lateral view

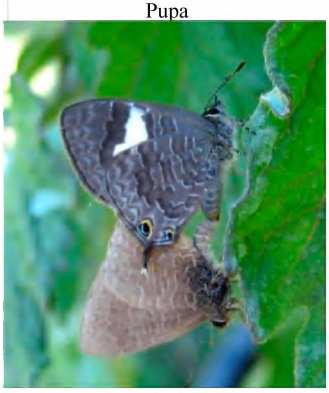
5th instar larva dorsal view

Kept in captivity, the larva did not consume the eggshell after emergence. The highly camouflaged larva rested and fed openly during daylight hours on fresh leaf buds and flower buds of the host plant. The larva completed five instars and attained a length of 10mm. It should be noted here that the larva was viewed under a microscope daily to determine the change of instars. Unlike many small lycaenids, the larvae are not attended by ants (Eastwood and Fraser 1999, in Braby 2000).

Pupa

The pupa, measuring 8mm in length, was located below a leaf of the host plant. It was attached with silk by the cremaster and a central girdle. In natural conditions, it appears uncertain where larvae pupate.

The total time from egg to adult was about 1.5 months, with egg duration of 5 days, larval duration 25 days and pupal duration of 12 days.



Mating pair

Within the boundary of the new Scenic Rim Regional Shire south of Brisbane, I have adult records for all months of the year, including the winter months where frosts occur periodically. In this region records indicate there are possibly 3 or 4 generations annually.

Acknowledgements: I thank my friend and colleague John Moss for commenting on the manuscript.

Photos Wesley Jenkinson

References:

Braby, M.F. 2000. Butterflies of Australia – Their Identification, Biology and Distribution. vol 2. CSIRO Publishing.

Moss, J.T. 2010. *Butterfly Host Plants of south-east Queensland and northern New South Wales*. 3rd edition, BOIC.

Leafcutter Bees – *Megachile* (Eutricharaea) – *Erica Siegel*

There are about 27 species of leafcutter bees in the genus *Megachile* in Australia. They are found in all states in both coastal and drier inland areas of Australia. Leafcutter bees range in size from 6 mm to 15 mm. Most Leafcutter bees are black and have white or orange-gold stripes of hair on the abdomen. They carry pollen on abdominal scopae (special bristles) under the abdomen.

Megachile pictiventris

Megachile serricauda

Leafcutter bees and Resin bees look similar, but Leafcutter bees can usually be distinguished by their relatively wide abdomen which tapers into a point while Resin bees have a narrower, cylindrical abdomen. Leafcutters alight on flowers with their wings spread while Resin bees fold their wings.

Bee watchers often first discover the Leafcutter bees when they notice rows of neat circular cuts on the edges of some leaves in their garden. Leafcutters use the discs of leaf to build nests.They particularly like the soft leaves of roses, *Bauhinia, Desmodium* and *Buddleja*.

Each female builds her own nest. The cut leaves are used to make a tube as a nest for the eggs or line a hole in timber or masonry with it. They may nest in artificial bee nests or in many different spaces such as gaps in door frames, folded towels, or almost anywhere.

Leafcutter bee nest

Unsuccessful nest incorporating Poinciana petals later eaten by fungus

The leaves are cut in various shapes, round and elongated, to suit the construction of the cell for the egg. The cell is then stocked with a mixture of nectar and pollen in which the Leafcutter bee lays her egg. More circular leaves are cut to close off the cell before constructing the next one until the hole or tube is filled with cells. The hole is then plugged with rough leaf cuttings.

When the eggs hatch the tiny larvae eat the provisions and when fully grown spin silky cocoons, develop into pupae then emerge as adult bees. Immature bees may hibernate through winter and finish developing into adults the next spring.

The leafcutter bees are parasitised by a minute wasp from the genus *Melittobia* and hundreds may be found in one cocoon eating the larva.

The African Carder bee - *Afranthidium repetitum* looks very similar to the Leafcutter bee and can be identified by the hairless bands on the abdomen. The bands on the Leafcutter bees are hairy.

Some of the plants Leafcutter bees forage on are as follows.
Natives: *Darling Pea, Pultenaea* species,
Exotics: *Gazania*, Daisies, *Leucophyllum,*
Herbs: flowering Basil and weeds such as Thistle.

African Carder bee

Photos Erica Siegel

References:
Batley, Michael - Australian Museum
Dollin, Anne - Australian Native Bee Research Centre www.aussiebee.com.au
Dollin, A., Batley, M., Robinson, M. & Faulkner, B. 2000. Native Bees of the Sydney Region: A Field Guide. Australian Native Bee Research Centre.

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New Distribution Records for Coeliadine and Trapezitine Butterflies (Lepidoptera: Hesperiidae) in Australia – *Kelvyn L. Dunn*

Summary
This paper lists 19 new locations in Australia for 14 species of butterfly from the subfamilies Coeliadinae and Trapezitinae. Each encounter-record is from a location that falls outside the boundaries of the species' distributions, as indicated on the range-fill maps provided by Braby (2000). It also discusses relevant new locations discovered by others since 2000, namely those that lie close to any listed in this paper. Yet, in doing so, it does not reiterate historic distributions that underpin Braby (2000), from wherein readers may source much of that baseline information. The new locations for the species tabled provide ongoing evidence that there remains much to learn about the spatial distribution of skipper butterflies across the continent and in Tasmania. And to that end, the paper suggests and discusses strategies for dealing with visual data gathering for skippers to ensure enthusiasts continue to contribute reliable information to improve knowledge of species' distribution.

Introduction
Adult skippers belonging to the subfamilies Coeliadinae and Trapezitinae can be elusive in the field. Their brisk flight together with their small to moderate size and sombre, often dappled colouring, collectively lower their visual profile on the wing. Where present in suitable habitat, they may be patchy or localised in occurrence and easily overlooked. An experienced eye will help to detect potential patrol areas (often aligned with prominent landforms) or likely perch sites (often near specific host plants), and will increase one's chance of seeing and photographing the adults. The link to landforms is fundamental for many; indeed, astute naturalists will have observed that the various species of butterfly that exhibit hill-topping behaviour

(which includes the skippers) may be locally abundant on high points. Yet, in those surrounding areas of their home range, which include places where adults seek nectar opportunistically and deposit eggs where food plants occur, they may go virtually unseen. Once found, a good measure of personal skill, including visual acuity and knowledge of the suite of species likely to be present locally (fine-tuned according to their seasonality), and reinforced by rapid recall of important wing patterns, will help identify some of them. Others may require close inspection by comparison with preserved specimens. Because of these issues, Murphy (2011) has unashamedly argued and demonstrated (in the report he compiled) that many (or even most) skippers will be overlooked by casual observers or inexperienced biologists making records of species' presence. This situation would apply particularly to the survey of more uniform habitats in the inland of the continent (especially those that lack prominent ridges or flowers), where the adults may be randomly dispersed, and when methods outside of the traditional netting approach are applied.

The lower detection rate for skippers has almost certainly been a long-standing issue spanning many decades (albeit usually left unmentioned in species inventories), and one that becomes a factor of influence in unremarkable landscapes where survey has been infrequent at best. The outcomes, in terms of information loss, are more than obvious today, particularly in remote regions of Australia. Indeed, the plotted distributions of encounter-records for many species of butterfly (not just the Hesperiidae) are noticeably under-representative beyond the coastal and sub-coastal regions (Dunn & Dunn 1991) – clearly, it has been those floristically richer areas nearer the coast where most butterfly workers, over the many decades, have focussed their efforts (Dunn 2010, 2014). By corollary then, the rather limited exploration of the inland and outback has worsened this knowledge deficiency for the broader butterfly fauna, as this recent series of reports on distribution has shown by the sheer number of new locations readily obtained for common and widespread species; thus, there is indeed much to learn.

Methods

Survey: To gain new records for this paper, I utilised a roadside explorative approach that involved counts of species (usually as adults) seen at numerous sites along major inland highways and byroads. The survey methodology described previously (see Dunn 2015a and earlier papers in the series) equally applies to this piece and the earlier trips it covers. Similarly, the methods used to measure distances and define locations to precision of within a kilometre of the actual site (as presented in the Table) have been described before (see Dunn 2013a). In addition, extended discussion and other recommendations to help describe locations effectively, and to avoid ambiguity, have been detailed elsewhere (see Dunn 2013b) and that source too will provide further reading, if required. I used a net for skipper groups (wherever able) to maximise the number of useful records obtained per site, and to achieve records hastily as much land coverage needed examination in the time available. In areas that restricted direct sampling methods, extended watching (where time was available for

this purpose) enabled photography of adults of many species; most of the images obtained usually included one or more characters enabling the identification of the adults encountered.

Photography: Over the course of two decades, I have utilised both a 'point and shoot' digital camera and digital video-cam (or earlier analogue equivalents) for field photography in conservation reserves, and their management as fact-gathering tools was sometimes constrained or enhanced by various predictable and unpredictable environmental circumstances. For example, some light cloud-cover (obscuring the sun) usually limits the adult's flightiness, visual vigilance and intruder-wariness, and may enable one's closer approach for higher resolution images, but a trade-off is that lessened flightiness often makes the adults harder to find in the field. In addition, light cloud cover also softens intruding shadows from foreground foliage or solid objects (including shadow from the photographer in late afternoon); otherwise, deeply shadowed areas may variably obscure some wing patterns or features of the sex-brand (where applicable). An auto-focussing video-cam (normally capturing 24 frames per second) has proved more suitable in varied lightings. When close up to the settled butterfly, and slowly moved across it, the multiple images obtained provide for greater pattern coverage over the several seconds of footage achieved. It also enables views of upper and under-wing surfaces, automatically adjusting the brightness during variable light exposures inherent amidst vegetation as the adults move about though dappled light penetrating the canopy. On rare occasions, video sequence has included several frames of the upper-surfaces when briefly exposed for less than a second just prior to departure flight in those species reluctant to bask with wings open, often uniquely securing identification to species in cases that may not be possible on other evidence in the footage. The trade-off here is that the images obtained, when viewed as individual frames (some of which have been used to illustrate articles in this series) are noticeably less sharp. These frames are of lower resolution (particularly noticeable, once cropped to centralise or enlarge the subject) than are those very high quality images produced by 'point and shoot' digital cameras. In contrast, use of the 'point and shoot' camera relies on the subject being stationary and moderately sunlit for several seconds for just one or more sharp images. Sometimes, when the lens is close to the butterfly, one's minor finger movement whilst pressing the shutter button to enable 'auto-focussing' at first, and image 'capture' thereafter, can startle the insect (potentially to flight). Obviously then, the mixed sampling methods applied at various sites were sometimes counterproductive for the single purpose of species checklists. Hence, some suspected new records were lost when adults were startled and, at other times, some of the routine species (suspected as present based on tentative sightings) were left unattended to as part of the trade-off for the time devoted to photography.

Identification: As per the previous report (Dunn 2015b), I identified most of the skippers encountered by in-hand examinations; in many cases I retained the adults examined as **vouchers** (52.4%), irrespective of whether they were also photographed in the field. It follows then, that the percentage of vouchers in the Table is very much

higher than the frequency applicable to the full set of records obtained for all butterflies on the trips concerned because, firstly, skippers are difficult to identify in the field and, secondly, because the table is selective data and lists only those records that represent new locations. Very occasionally too, on the trips involved, some adults I examined to confirm their identification were subsequently released (**Rel.**) (0%, this paper). Where images are included, a superscript links the photos (usually video frames) to the records concerned. Records that standalone as image-only (meaning that the insects were not retained as vouchers) are marked as '**Photo**' (9.5%). The eight (8) encounters (38.1%) recorded by observation-only are marked as '**Obs.**'; for six of these, the identifications were certain (Category 1). In each case, I recognised sufficient characters to achieve that level of confidence. However, two observations were to a level of 'almost certain' (Category 2) as insufficient evidence was obtained to identify to species the adult or larval stage involved.

Results

The Table lists 21 records of 14 species from 19 new locations (arranged from north to south), across Australia; all sites fall outside (or if not, then very close to) the boundaries defined by Braby (2000) for the species concerned and so are new on that criterion. Those records considered worthy of individual comment due to their interesting circumstances, whether they be biological or behavioural in focus, include a superscript indicating a note is available. These notes also provide references to encounters by other workers in the last decade or so, where their published new locations fall close to those listed in this report.

Table: Nineteen new locations for species of Coeliadinae and Trapezitinae from beyond their known ranges in Australia

Species/Location	State	Geocode	Date	Format
Subfamily Coeliadinae				
Hasora discolor				
Myrtle Creek crossing, 3km NNE of Proserpine	Qld	20°23'S, 148°36'E	03 Nov 2012	Obs. Note 1
Colosseum Creek, about 15km SW of Miriam Vale, via the road to Many Peaks	Qld	24°25'S, 151°30'E	19 Jan 2002	Voucher Note 2
Subfamily Trapezitinae				
Trapezites phigalioides				
Siding Spring Observatory, W of Coonabarabran	NSW	31°17'S, 149°04'E	22 Nov 2011	Voucher Note 3, Figs. 1 & 2
Trapezites maheta				
Carnarvon Gorge, along walking trail at 25°03'03"S, 148°12'58"E.	Qld	25°03'S, 148°13'E	11 Nov 2011	Obs. Note 4

Trapezites argenteoornatus				
Forrest Beach, WSW of Capel	WA	33°35'S, 115°27'E	29 Oct 2008	Voucher [Note 5]
Trapezites symmomus				
Providence Ponds, at 33.5 km by road WSW of Bairnsdale	Vic	37°55'S, 147°16'E	20 Feb 2015	Voucher [Note 6]
Stradbroke West, near Mowatts Rd jct., about 8km WNW of Stradbroke (via the Gormandale Road)	Vic	38°16'S, 146°57'E	07 Mar 2011	Voucher [Note 6a]
Giffard West, adjacent to highway	Vic	38°22'S, 146°59'E	07 Mar 2011	Obs. [Note 6b]
Anisynta dominula				
Liawenee Canal (road crossing), Liawenee	Tas	41°54'S, 146°41'E	13 Mar 1996	Voucher [Note 7]
Neohesperilla xanthomera				
St Johns Peak, 14km S of Eungella	Qld	21°16'S, 148°29'E	16 Sep 1993	Voucher [Note 8]
Toxidia andersoni				
Mount Warning, upper slopes (near chain ascent)	NSW	28°24'S, 153°16'E	01 Dec 1992	Voucher [Note 9]
Toxidia thyrrhus				
Hann River (crossing), near Hann River Roadhouse, CYP	Qld	15°12'S, 143°52'E	09 Jan 2002	Obs-C2 [Note 10]
Toxidia parvulus				
Burbie Canyon walking track, Warrumbungle National Park	NSW	31°17'S, 148°58'E	19 Nov 2011 12 Nov 2012	Photo [Note 11, Figs 3 & 4] Obs. [Note 11a]
Pincham car park, Warrumbungle National Park	NSW	31°18'S, 149°00'E	19 Nov 2011	Obs. [Note 11b]
Baldry Crossing, near Main Ridge, Mornington Peninsula	Vic	38°25'S, 144°58'E	15 Mar 2010	Obs.-C2 [Note 12]
Hesperilla ornata				
Gipsy Point, East Gippsland	Vic	37°29'S, 149°41'E	10 Dec 2009 13 Dec 2009	Obs. [Note 13] Voucher [Note 13a, Fig. 5]

Hesperilla idothea				
Ansons Bay (in Acacia Drive)	Tas	41°02'S, 148°16'E	13Nov 2007	Juvenile Note 14, Fig. 6 (voucher)
Hesperilla donnysa				
Ansons Bay (in Acacia Drive)	Tas	41°02'S, 148°16'E	13 Nov 2007	Juvenile Note 15 (voucher)
Motasingha trimaculata				
At a scenic lookout, about 4km SW of Talyuberlup, Stirling Range National Park	WA	34°26'S, 117°57'E	23 Nov 2008	Photo. Note 16

Key to Table:

Note 1. The single adult *H. discolor* seen (seemingly a territorial male), appeared localised to a small light gap under the upper canopy, amidst some massive paperbarks in dense gallery forest. The male was active in mid-afternoon, sometime between 15:05 and 15:40h (Australian Eastern Standard Time – AEST) – the duration of survey on that particular visit. Myrtle Creek is a rich site for common butterflies (at suitable times of the year); I have seen some 45 species there across several visits. Only about 15 species were seen on that November visit in 2012, but 35 minutes was a brief inspection. More species would have been detected had I visited at an earlier hour (and for a longer period), but *Hasora* are less likely to be encountered before mid-afternoon so visits at differing times of the day are useful to see particular species.

Note 2. A male *H. discolor* was encountered in riparian scrub, flying in shade under the canopy between 12:50 and 14:00h (AEST); it patrolled by flying oval circuits, some two metres above ground.

Note 3. Two males of *T. phigalioides* were patrolling in grassy parkland adjacent to woodland at 1,132 m above sea level (a.s.l), between 12:20 and 13:05h (Australian Eastern Daylight Time – AEDT; that being 11:20 to 12:05h AEST). One fed at flowers of Dwarf Sunray, *Triptilodiscus pygmaeus* (Asteraceae) (Fig. 2).This upland location is disjunct from the main eastern distribution at this latitude in NSW. Indeed, it is very likely that the species occurs also in the Warrumbungle National Park, some 30 km farther west, albeit that neither Smithers and Peters (1972) nor Daniels and Moulds (1977), who historically surveyed that region, found evidence of it. Both papers reported the same two species of skipper from the National Park (although at least five members of the Hesperiidae occur there). The unexpectedly low skipper diversity reported from each of those published

sampling events may stand as further evidence that it is easy to miss members of this group during field surveys (see Introduction).

Note 4. A male and female *T. maheta* were actively flying amidst tall Blady Grass (*Imperata cylindrica*) in woodland along the National Park gorge walking trail, during late afternoon (at 16:30h AEST), some 494 m a.s.l. The species occurs in the "Carnarvon Range" (Braby 2000); that report was almost certainly based on a specimen in the ANIC, so labelled, and taken in October 1959 by C. Vallis, which Dunn and Dunn (1991) had earlier included on a point-plotted map for this species (*sens. lat.*). The contemporaneous record from the Gorge proper confirms the presence of *T. maheta* in the broader region and usefully provides a fine location, otherwise lacking from this remote area.

A few historic workers (including N. Geary, W. Barnard and an anonymous contributor) had specified 'Carnarvon Range' on their specimen labels, dating from the late 1930s to the early 1960s (Dunn & Dunn database, and miscellaneous examples cited in Peters 1969, Edwards & Kerr 1978, Sibatani & Grund 1978, Common & Waterhouse 1981, Monteith & Yeates 1988, Eastwood et al. 2008, etc.). This generalised description of provenance, vague at best, referred to one or more fine collecting sites, that were, perhaps, common knowledge among selected collector circles in that era. However, it appears that contemporary workers are now uncertain as to actual location(s) intended in that broad area of western central Queensland. I suspect it may refer to the Mount Moffatt Station area (rather than to the Carnarvon Gorge proper); the former area might have served as a base in those days, and may have contained old growth Brigalow areas close by (to sustain one species so labelled). Atkins (1975) listed some records of his from the "Carnarvon Ranges" obtained during the early 1970s, but the one or more locations involved are unrelated to the earlier material by that name, and refer to the Gorge area (A. Atkins p.c.).

Note 5. Three adults of *T. argenteoornatus* were seen perching amidst shore scrubland in sandy clearings, and many others were perched along the sandy coastal road, all situated about 500 metres southwest of the 'beach access' signage, near the Forrest Beach Road-Coast Road junction. They were active during brief sunny periods between 13:00 and 14:00h (Australian Western Daylight Time – AWDT; equating to 12:00 to 13:00h Australian Western Standard Time – AWST). Valentine and Johnson (2003) earlier reported the species at Dunsborough, where it occurs commonly at similar latitude, but on the opposite shore of Geographe Bay; the Forrest Beach record supplements theirs.

Note 6. Three males of *T. symmomus* were taken whilst defending perch sites associated with *Melaleuca* flowers at Providence Ponds, at 35 m a.s.l., in

central Gippsland (between 16:10 and 16:40h AEDT). These adults would be expected, from a geographic perspective, to be variably transitional between the nominate subspecies in far eastern Victoria and subspecies *soma*, which occurs westward from Traralgon (Dunn & Dunn 1991). However based on the colour tone of, and lesser prominence of the post-median series of bluish-white spots on the hind-wing underside, all show some allegiance with the nominate subspecies from eastern Victoria (rather than to populations from West Gippsland). (**6a**.). To the southeast, at Stradbroke West, several females were present near sedges of *Lomandra longifolia*, which were growing in woodland adjacent to the Stradbroke-Gormandale Road, at 107 m a.s.l. (16:00-16:15h AEDT). Again this area is situated between populations of the nominate subspecies to the east and subspecies *soma*, to the west. Adults in the Stradbroke West district would likely be transitional between these two subspecies, from a geographic perspective. However, based on the same characters on the hind-wing underside, those few specimens examined seemed a little closer in appearance to subspecies *soma*. (**6b**). A solitary adult encountered farther south at Giffard West, was seen flying near host plants in woodland adjacent to the South Gippsland Highway, about 51 m a.s.l. (between 16:30-16:40h AEDT); it could not be examined because it evaded capture. Material from Giffard West, when this becomes available for study, would likely resemble material from Stradbroke West, as the two locations are not far apart.

The species seems to have remained unrecorded, in museum collections or undocumented in literature, from the intervening area between the subspecies – Braby (2000) indicated each taxon as disjunct populations on his synoptic map. Nonetheless, I anticipate that populations of *soma* and the nominate subspecies are connected by a series of small (mostly yet to be discovered) populations in that intervening area of supposed absence. The reason for this apparent long-standing gap, despite regular butterfly survey in that area by many workers over many decades last century, is curious, but the apparently sharper cline now presenting suggests a barrier of some form once occurred. Indeed, the species would appear to be quite rare in the 'gap' and those few populations recently found in that region (three of which are documented herein) may be small, localised and sporadically distributed amidst areas of less suitable habitat. I call for others visiting central Gippsland to seek out this species – the adults are usually locally abundant (where they occur) and are conspicuous in flight, and thus not hard to find (where present). As a handy hunting guide, the adults (particularly males) can be much higher in profile in mid and late afternoons in Victoria, whereas at other times of the day they may go unseen unless feeding at flowers in the mid mornings.

Note 7. The synoptic range-fill map by Braby (2000) for *A. dominula* in Tasmania shows an area of absence on the Central Plateau, albeit this is from where the

species has been reported historically (Couchman & Couchman 1977; see also Dunn 1999 concerning this particular encounter). The record tabled is outside the range on that argument, and reiterated to draw attention to this inaccuracy in that contemporary reference on Australian species. Orr and Kitching (2010) may have rectified this issue (whether intentionally or inadvertently), but the very small-scale map in that piece, and the lack of textual comment regarding it, leaves this open for argument's sake.

Note 8. Two hill-topping males of *N. xanthomera* were present on the summit, during a visit to the Eungella region with Michael Braby. This location represents a cusp record or is marginally outside the range-fill map by Braby (2000); it is important in defining the western limits at this latitude in the Burdekin region of northern Queensland.

Note 9. This record for *T. andersoni* is to the east of the northern montane section indicated on the range-fill map by Braby (2000). It first appeared in an unpublished report on the butterflies of Mt. Warning National Park provided to New South Wales National Parks & Wildlife Service in 1995; that internal report to that state service was later included in Dunn (2006) to increase its availability. Newland (1999) similarly found the species at or near the summit. Along the Mt Warning walking trail, the species appeared to be localised to a small grassy clearing amidst forest near the steep ascent.

Note 10. A single male skipper was seen conspicuously perched, with wings in characteristic V-shape, atop of a seed head of a tall grass in open woodland near the river (sometime between 10:00 and 12:00h AEST – the duration of survey). I saw the upper wing surface briefly, as I approached, but the adult, being vigilant and wary in bright sunshine, immediately departed, not to be seen again. I felt confident that it was a male of *Toxidia thyrrhus*, short of capturing it. My field diary listed the observation as Category 2 (judged at the time of the encounter in 2002), which was no doubt based on the same (albeit then unwritten) understanding of Franklin et al. (2005: 2), that in such a case "there might be a reasonable call for a confirmatory voucher specimen". This is particularly so in this remote part of Australia, where, like parts of the Northern Territory, the fauna is more diverse and less well known. Nonetheless, the site it selected for its territorial perch and its stance matched my field recollections of the behaviour of males of the species in southeastern Queensland and in the Wet Tropics region in the 1980s and 1990s.

Note 11. Adults of *T. parvulus* were abundant near the start of the Burbie Canyon walking trail in Warrumbungle National Park, at elev. 345 m a.s.l. (31°16'44"S, 148°58'15"E, accuracy: +/- 100m). They sought nectar at a *Verbena* species (Verbenaceae) (see Figs. 3 & 4) during early afternoon, between 13:45 and 14:00h (AEDT). (**11a**.) The following year near the third

creek crossing, at elev. 448 m a.s.l. (31°17'02"S, 148°58'12"E), a single female was seen to feed at a purple pea flower (Fabaceae) at 11:20h (AEDT). (**11b**) In addition, adults were seen nearby, in the vicinity of the Pincham car park, at elev. 500m a.s.l, where they perched on fallen leaves on the ground in eucalypt open forest, between 16:50 to 17:10h (AEDT). Linda Rogan (p.c. 2011) has also photographed the species in the Spirey Creek area of the park.

Note 12. A female of *T. parvulus* was seen perched (with closed wings) on a bracken frond in a sandy open area, amidst open forest along a walking trail, between 14:25 and 15:40h (AEDT) – the duration of survey. The underside pattern including the post median series of brown rings was briefly seen, and I feel convinced that it was this species and not a worn female of *Dispar compacta*, which I had considered in the differential diagnosis at the time; neither was it *Pasma tasmanicus*, which its hind-wing underside colour and patterns readily excluded. My field-diary recorded the observation as an undoubted sighting, but I have ranked the record cautiously herein as Category 2 (for the present) as there are no other records from the Mornington Peninsula, and because the species is very rare near Melbourne, nowadays, and unlikely to be found on probability. The sandy habitat, however, is supportive of the diagnosis, as *T. parvulus* favours such in coastal areas where it occurs. Again, this encounter stands as a case where reasoning objectively aligns with the argument of Franklin et al (2005) and their reasonable call for a voucher for such a record, under the circumstances. I have visited the area (where it was seen in 2010) a few times since then, searching diligently as one would, but have encountered no others. I am confident that further evidence of it will arise in time.

Note 13. A solitary male *H. ornata* was seen feeding at flowers of *Buddleia*, during sunny weather, between 10:45 and 11:00h (AEDT), at the unofficial 'Kangaroo viewing area' (about 100-200 m up the main road from the boat ramp); (**13a**) a follow-up visit revealed several adults feeding at flowers of Buddleia between 10:20 and 10:40h (AEDT). This location represents a cusp record or is marginally outside the range-fill map by Braby (2000); as a location for the species it is likely well known (within some collector circles) but not documented in literature. David Crosby, who once owned a holiday house in the village, recorded adults on his property during December and January in various years from 1993 to 1998 (DFC database, in Dunn & Dunn database) and, Graham Wurtz (p.c. 2014) reported having seen adults (at my personal site) in Dec. 2014.

Note 14. An empty pupal shell of *H. idothea* was found on a young sedge of a *Gahnia* sp. prob *grandis* (Cyperaceae) (a known host plant), sprouting in open forest remnants in Acacia Drive, opposite no. 75. Its larger size and pale cream colouration (the live pupa of this species is at first green and later becomes

cream or brown), clearly distinguished it from *H. donnysa* (also present at the site), and assisted identification. The location (and breeding evidence) fills a gap in an area of previously undocumented distribution in the far northeast of the state (see synoptic map by Braby 2000). (The purpose of the visit was to search for *H. mastersi* in that remote region – a very rare species allegedly in northern Tasmania; the encounter with *H. idothea* was incidental but anticipated.)

Note 15. Three mature (or near mature) larvae and two pupal shells of *H. donnysa* (both dark brownish-black in coloration, typical of the species in other parts of southern Australian) were on a young sedge of a *Gahnia* sp. prob *grandis* (Cyperaceae) (a known host plant), sprouting in open forest remnants opposite no. 75. The larvae from Ansons Bay (Fig.6) possessed prominent white longitudinal stripes, quite unlike those larvae of same or similar age from Victoria (based on personal experience). They were prominently striped like those from 1.8km ESE of Forrestdale hall, WA (Fig.7) (estimated as fourth or fifth instars at the time) and Billy Creek crossing (Newell Highway), Pilliga Scrub, NSW (Fig. 8) (of unstated age in my field notes, but probably near maturity). All are from populations anciently isolated from the main coastal range in southeastern Australia. Mature larvae (of confirmed age) from Arthurs Seat (Fig.10) and 3km SW of Spargo Creek (near Trentham) (Fig. 11) in Victoria are uniformly green, but the larval head band, which is sharply pointed in the apical region, is very similar to those from the other locations, except for two examples from inland New South Wales (Figs 8 & 9). Mature larvae (of confirmed age) from Boonoo Boonoo, at 28° 53'31"S, 152°07'21"E, elev. 986 m a.s.l. (near Tenterfield, in the New England region), NSW (Fig. 12), and from an unspecified location in South Australia (Fig. 13) are each similar to the two examples from Victoria. The body pattern of the larva from Bumberry Ridge, east of Parkes, NSW (Fig. 9) (of undetermined age in my field notes, but probably near maturity) is similar to the mature larvae illustrated from Victoria, the New England region of NSW, and from South Australia. However, the head of both larvae from inland New South Wales have the frontal band bluntly diffuse in the apical region and the lateral band is diffusely edged.

The striped body pattern occurs in mature larvae in some other species in the genus, but apparently not in mature larvae of *H. donnysa* in Victoria (or not that I have seen), nor usually in those mature larvae from South Australia (R. Grund p.c. 2015). The striped pattern may be an ancestral feature of the group, one retained from earlier larval instars, in some isolated populations in larvae near or close to maturity. That said, the (presumably mature) larva sharply illustrated by Field (2013), but which is without location details, is typical of mature examples seen in Victoria. In South Australia, mid-instars up to and including the fourth have stripes, and "…even the odd 5th instar

can have stripes in its early stages, but later, particularly nearing the pre-pupa stage the stripes disappear" (R. Grund p.c. 2015) and on maturity, the green form (probably the apomorphic or derived state) replaces it. Grund remarked, as well, that there is "a non-verified tendency for larvae to be more stripier in colder areas. We have only looked at different colours of the pupae". The apparent retention of juvenile coloration in some older larvae (likely the pleisiomorphic state) in some populations needs further investigation to substantiate the rather circumstantial evidence provided at this time (unfortunately confounded by unconfirmed ages of some of the larvae photographed). Evidence as to whether the presence or absence of obvious body stripes (in mature larvae) is partly geographical in origin or simply part of the broader variation within populations (either way, possibly linked to locally cool climates) will emerge when workers illustrate more larval material (of confirmed ages) from various populations.

Of the three supposed *donnysa* larvae taken at Ansons Bay, one larva trialled on a garden-planted *G. clarkei* seemingly refused that foliage; it apparently departed the plant (typical behaviour linked to an unacceptable host) or may have succumbed to a predator as it could not be found the following morning (in the artificial taped-shelter constructed for it). Another placed similarly on a garden *G. sieberiana* had webbed the (sticky-taped) shelter by the next day and fed for a lengthy period but was found drowned at the base of the plant after a severe storm tore open its shelter. The photographed larva, reared indoors on a potted *G. sieberiana*, produced an adult on 28 Feb 2008, and confirmed the species identification as *H. donnysa*.

Incidentally, the plotted map of this species provided by McQuillan and Virtue (1994) included a site in northwestern Tasmania that appears situated at Great Musselroe Bay, to the north of Ansons Bay, and which Braby (2000) missed during the construction of his range-fill map for this species.

Note 16. Three aged males of *M. trimaculata* were seen perching at the lookout summit during sunny periods between 13:05 and 13:35h AWDT; conditions were windy at the time, and the perching adults were difficult to approach and quickly lost from sight on their departure. The sex brand of one male was visible, and that patiently awaited opportunity enabled its identification with certainty. Yet, it is assumptive that the two other individuals seen less closely (during 30 minutes observation time at the site), were of the same species. The similar *M. dirphia* also occurs in Stirling Range National Park (first taken at Bluff Knoll in 1966 by L.E. Couchman, ANIC), and may be present at times at this particular lookout as well, but I gained no firm evidence of it on my passing visit that year. There seem to be no published reports of *M. trimaculata* in the Stirling Range (nor of *M. dirphia*), but I

suspect the former is locally common there in some seasons and has been overlooked on account of the inconspicuousness of skippers within the park.

Discussion

For some of the species listed, the new locations link (or partially link) major areas of occurrence and add to available knowledge, giving insight into a much broader distribution in places. The two records of *Hasora discolor* from coastal Queensland are examples of linkage sites. Similarly, for *Trapezites symmomus* and *Hesperilla ornata*, the scattered new records from eastern Victoria provide evidence of what is very likely to be (for the former), and what has long been suspected to be (for the latter – compare synoptic map in Common & Waterhouse 1981) continuous distributions in that southern state. In other cases, the new information from inland montane areas indicates patchy occurrences that would likely be biogeographically disjunct from the main areas of distribution. For some skippers tabled, the extensions recorded may be minor but each provides evidence of a broader occurrence at a finer level in the areas concerned. All these new records likely link to an inadequate knowledge of species' distributions due, for the most part, to a lack of regular exploration by insect collectors, both spatially and across seasons. Other explanations, such as unusual climatic conditions in parts of Australia (applicable for some of the years involved), or human interference (in its varied forms), would seem unlikely for the skippers species concerned. Finally, each new record adds insight into the distribution of those species of butterfly listed, particularly for the inland, and helps fill knowledge gaps evident in their distributions (as based on the range-fill maps by Braby 2000).

Recommendations for visual data gathering

Because skippers tend to be low profile, inconspicuous in flight, and possess similarly patterned wings, it is best to retain vouchers to ensure that quality information is gathered. Where this is not possible, it is desirable to provide measures of uncertainty, if and where required, for any sight-records (that is, where one may have considered a differential diagnosis because fewer than desired characters were visible). I argued the case for vouchers for the subfamily Hesperiinae in the previous paper in this series (see Dunn 2015b) and the same concerns apply variably to these two subfamilies as well. It is easy to identify species mistakenly under differing lighting in the field, and photos, although invaluable in the absence of a voucher, may not always assist an unambiguous identification to species level. Indeed, where identification is not achievable on the evidence gathered, some field encounters might need to be discarded – an approach actioned by Franklin et al. (2005). They wrote (p.2), concerning some of their own observations of butterflies in the Northern Territory, "*We have excluded records where there might be a reasonable call for a confirmatory voucher specimen (e.g. many Hesperiidae)*". Others, historically and contemporaneously, have included dubious records in reports by indicating measures of uncertainty that apply to particular records. Consider Koch and van Ingen (1969), as one example among the many writers who have used this approach. They wrote

concerning one of their identifications, that, "*this is a tentative determination because only damaged specimens are available*" (p.98), albeit that their identification was mistaken at that time. Nonetheless, their admission promoted transparency and alerted readers to be wary, but in doing so, they also provided information for the future. Indeed, the actual species involved is more than obvious today because of our improved knowledge of local faunas – distributions that were poorly known in that era. Alternatively, or even additionally, others may have simply listed records at a higher classification, sometimes offering several differential diagnoses or none at all. As an example of a recent piece, Moss and Jenkinson (2014) listed some records generically, suggesting three *possibilities* (but none as a probability) for one particular observation. I (along with many others) have done similarly when documenting encounters where species identification was unachievable in the field. More often than not, those records of common species that are cautiously included as 'almost certain' or 'very probable' (due to confounding factors in the field) may be correct anyway, and may become acceptable in the future when knowledge of finer distribution and the species suite at particular sites comes to hand. Such admissions of uncertainty valuably serve to protect the baseline knowledge from contamination, and future authors or data compilers can discard those encounter-records identified less reliably (if they wish to) as part of their data analyses. Where growing evidence suggests mistaken species diagnoses in historic lists, it is often those records that were weakly documented (with little circumstantial information included), published vicariously (secondary information), or where the writers were less than transparent (for records where measures of doubt may have been associated), that matters of reliability become an issue for future workers. Even where museum-lodged vouchers are available across time, some workers (for example, Dunn & Dunn 1991) deliberately excluded many female specimens of certain groups of skippers because they considered that the taxonomic methods (then recommended) did not resolve their identification unambiguously where close species' ranges overlapped.

Given these complications, it seems reasonable to suppose then that those many contemporary insect enthusiasts who prefer to use only field observation and/or photography for fact gathering (rather than handle or retain specimens), may feel disenchanted over time and so devote increasingly less attention to particular groups. Any change of focus, because identifications have proved difficult to obtain vicariously or to personally achieve from photos, will inevitably result in less information on distribution for neglected groups in the longer term. Moreover, of those who favour the 'digital sampling trend' for its 'conservation cleanliness' (now enhanced by high-resolution image-capturing mobile phones in their increasing ubiquity), and who, as keen 'citizen scientists' enjoy routinely photographing skippers (as well as other butterflies) will unlikely curtail this predicted imbalance. The incoming information submitted to on-line databases across future decades will likely remain skewed on probability, and the lack of prettiness of skippers may not be the driving factor for this. The main issue appears to be that those who use 'point and

shoot' photography as their stand-alone method of fact gathering need acquire an extensive knowledge of characters that distinguish each of the closer species beforehand. That way, they can ensure that those images achieved (whether archived or placed online) will contain the required information for identification purposes. This will enable usefulness of their photos to others, and stand as evidence of baseline and new distribution (where and when applicable), in a similar way that specimen vouchers have served across generations of study to this time. However, I recognise that not all insect photographers have the keenness or time to gain those specialist skills, and that many simply enjoy the photographic moment.

Conclusion

As stated in the previous report in this series, it would seem that the observation method, even when supplemented by digital photography – the means commendably aligned with conservation awareness – without due care and skill might not guarantee as complete a list for a site visited as does traditional netting and in-hand examination. That said, handling and retention remains a reasonable call for many of the Hesperiidae and Lycaenidae (see Dunn 1994 p.72, Franklin *et al*. 2005 p. 2 (as quoted above), Dunn & Franklin 2010 p.90, Dunn & Field 2012 p.27, Dunn 2015b, & this paper), including the retention of vouchers for photographs from these groups where this is permissible. My argument favouring specimen vouchers has been based on extensive testing of various methods, both in isolation and in combination over many years, and is not driven by a desire to possess items for a display cabinet, nor linked to a passion for 'collecting' from a bygone era. The traditional method remains the ideal and easiest sampling process, and it was the means used to obtain many of the new records listed in this paper (and others in this series), but its applicability is dwindling in light of ever-increasing reservation and legislation.

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References:

Atkins, A. 1975. Larval foodplants of some Queensland Butterflies. *News Bulletin of the Entomological Society of Queensland* 3(7): 117-119.

Braby, M.F. 2000. *Butterflies of Australia: their identification, biology and distribution*. CSIRO Publishing, Collingwood Vic.

Common, I.F.B. & Waterhouse, D.F. 1981. *Butterflies of Australia*. Second Edition. Angus & Robertson, Melbourne, Vic.
Couchman, L.E. & Couchman, R. 1977. The Butterflies of Tasmania. *Tasmanian Year Book, 1977* 11: 66-96.
Daniels, G. & Moulds, M.S. 1977. The butterflies of Warrumbungle National Park, New South Wales. *Australian Entomological Magazine* 4(3): 49-51.
Dunn, K.L. 1994. Butterflies attracted to *Eucalyptus* flowers at Nathan, and a species check-list for Toohey Forest, Queensland. *Victorian Entomologist* 24(3): 71-75.
Dunn, K.L. 1999. Butterfly watching in Tasmania – Part V. *Victorian Entomologist* 29(2): 33-39.
Dunn, K.L. 2006. Butterfly checklists for five National Parks in eastern Australia: compiled unpublished reports sent to state conservation services during the 1990s. *Calodema* 6: 10-28 (online at www.calodema.com).
Dunn, K.L. 2010. Overview of the butterfly database: Part 4 – Personal contributions (KLD). *Victorian Entomologist* 40(5): 98-109.
Dunn, K.L. 2013a. Field Notes: Gulf Country extensions to the known distribution of the Long-tailed Pea-blue, *Lampides boeticus* (Linnaeus 1767) in Queensland (Lepidoptera: Lycaenidae). *Metamorphosis Australia, Magazine of the Butterfly & Other Invertebrates Club* 69: 17-23.
Dunn, K.L. 2013b. Overview of the butterfly database: Part 7 – Descriptions of provenance and promotion of new trends. *Victorian Entomologist* 43(1): 13-22.
Dunn, K.L. 2014. Overview of the butterfly database: Part 8 – Counts of sites, as a glimpse into past exploration. *Victorian Entomologist* 44(4): 85-89; *continued* 44(5): 105-108.
Dunn, K.L. 2015a. New distribution records for Nymphalid butterflies (Lepidoptera: Nymphalidae) in Queensland. *Metamorphosis Australia, Magazine of the Butterfly & Other Invertebrates Club* 76: 18-31.
Dunn, K.L. 2015b. New distribution records for Hesperiine butterflies (Lepidoptera: Hesperiidae: Hesperiinae) in Australia. *Metamorphosis Australia, Magazine of the Butterfly & Other Invertebrates Club* 77: 17-32.
Dunn, K.L. & Dunn, L.E. 1991. *Review of Australian butterflies: Distribution, life history and taxonomy. Parts 1-4.* Melbourne, Australia: Published by the authors.
Dunn, K.L & Field, R.P. 2012. Two new records of skipper butterflies from the Murray Valley in SE Australia. *Victorian Entomologist* 42(2): 26-28.
Dunn, K.L & Franklin, D.C. 2010. Exploring the adequacy of representation of butterfly species' distributions in a more accessible portion of northern Australia. *Northern Territory Naturalist* 22: 88-94.
Eastwood, R., Braby, M.F., Schmidt, D.J., Hughes, J.M. 2008. Taxonomy, ecology, genetics and conservation status of the Pale Imperial Hairstreak (*Jalmenus eubulus*) (Lepidoptera: Lycaenidae): a threatened butterfly from the Brigalow Belt, Australia. *Invertebrate Systematics* 22: 407-423.
Edwards, E.D. & Kerr, J.F.R. 1978. A new species of *Candalides* from eastern Australia and notes on *Candalides hyacinthinus* (Semper) (Lepidoptera: Lycaenidae). *Australian Entomological Magazine* 4(5): 81-90.
Field, R.P. 2013. Butterflies. Identification and life history. Museum of Victoria Publishing, Melbourne, Vic.
Franklin, D.C., Michael, B., & Mace, M. 2005. New location records for some butterflies of the Top End and Kimberley regions. *Northern Territory Naturalist* 18: 1-7.
Koch, L.E. & van Ingen, F.C. 1969. The butterflies of Koolan Island, Western Australia. *Western Australian Naturalist* 11(4): 98.

McQuillan, P.B. & Virtue, J. 1994. *Butterflies of Tasmania.* Tasmanian Field Naturalists Club Inc. Hobart, Tasmania.
Monteith, G.B. & Yeates, D.K. 1988. The butterflies of Mount Moffatt and Carnarvon National Parks, Queensland. *Queensland Naturalist* 28(5-6): 14-32.
Moss, J.T. & Jenkinson, W.J. 2014. The butterflies of Kroombit Tops and Bulburin National Parks, Boyne Valley, Central Coastal Queensland. *Queensland Naturalist* 52(1-3): 32-47.
Murphy, M.J. 2011. Notes on the butterflies of Bruxner Park on the north coast of New South Wales, Australia. *Victorian Naturalist* 128(1): 11-17.
Newland, G. 1999. Butterflies of Mount Warning National Park. *Victorian Entomologist* 29(5): 84-90.
Orr, A. & Kitching, R. 2010. *The butterflies of Australia.* Crows Nest, NSW: Jacana Books, Allen & Unwin.
Peters, J.V. 1969. Notes on the distribution of Australian Hesperioidea and Papilionoidea (Lepidoptera). *Australian Zoologist* 15(2): 178-184.
Sibatani, A. & Grund, R.B. 1978. A revision of the *Theclinesthes onycha* complex (Lepidoptera: Lycaenidae). *Tyo To Ga* (*Trans. Lep. Soc. Jap.*) 29(1): 1-34.
Smithers, C.N. & Peters, J.V. 1972. Butterflies observed in Warrumbungle National Park, N.S.W. *Australian Entomological Magazine* 1(1): 11-12.
Valentine, P.S. & Johnson, S.J. 2003. Notes on the distribution and conservation status of *Trapezites atkinsi* Williams, Williams & Hay (Lepidoptera: Hesperiidae). *Australian Entomologist* 30(2): 87-91.

Fig. 1

Fig. 2

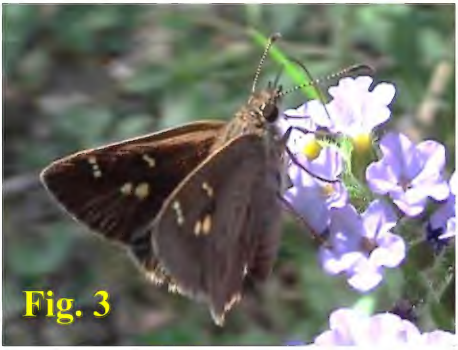
Fig. 3

Fig. 4

Fig. 1. *T.phigalioides* male under side – Siding Springs, NSW.
Fig. 2. *T.phigalioides* male upper side – Siding Springs, NSW.
Fig. 3. *To.parvulus* female under side – Burbie Canyon track, Warrumbungle Nat. Park,NSW.
Fig. 4. *To.parvulus* female upper side – Burbie Canyon track, Warrumbungle Nat. Park,NSW.
Fig. 5. *H. ornata* male under side – Gipsy Point, Vic.
Fig. 6. *H. donnysa* mature (or near mature) larva – Ansons Bay, Tas.
Fig. 7. *H. donnysa* (fourth or fifth instar) larva – 1.8 km ESE of Forrestdale hall, WA.
Fig. 8. *H. donnysa* mature (or near mature) larva –Billy Creek crossing (Newell Hwy), Pilliga Scrub,NSW.
Fig. 9. *H. donnysa* mature (or near mature) larva – Bumberry Ridge, 25km E of Parkes, NSW.
Fig. 10. *H. donnysa* mature larva –Arthurs Seat, Mornington Peninsula, Vic.

Fig. 11. *H. donnysa* mature larva – 3km SW of Spargo Creek, Vic.
Fig. 12. *H. donnysa* mature larva – Boonoo Boonoo, near Tenterfield, NSW.
Fig. 13. *H. donnysa* mature larva – SA

All photos by Kelvyn Dunn except Figs. 12 and 13 (courtesy of W. Jenkinson & R. Grund, respectively).

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Indigo Flash (*Rapala varuna*): what is it with their caterpillars? – *Helen Schwencke*

Ever since I first saw the unusual caterpillars of the Indigo Flash back in the mid-1990s, I've been checking every known and related host plant I come across to find more of them. The first record of Millaa Millaa (*Elaeagnus triflora*) as a host plant was one that was planted in my West End garden as a bush food plant. At the time about five or six caterpillars of varying sizes were happily munching their way through the flower buds before moving onto leaves in later instars.

We collected the caterpillars and raised them inside. Sadly we found that those which pupated early disappeared from inside the container. This mystery was solved when two half eaten pupae were found in the container – carnivory by the remaining caterpillars. The outcome of this caterpillar raising exercise was one male Indigo Flash whose photo was used for our book *Create More Butterflies.*

Despite regularly searching the plant over the following years, I found no further caterpillars on it. I've since found one caterpillar on the flowers of a Tuckeroo (*Cupaniopsis anacardioides*) from Woodfordia (the site of the Woodford Folk Festival) in 2005.

So you may imagine my delight, in May this year, when I found a 3rd or 4th instar caterpillar at Woodfordia. It was eating the flowers of an *Acacia maidenii*. Scouring the shrub revealed it to be the only one there.

To find a supply of food I searched for other *Acacia maidenii* shrubs around Brisbane, locating some at a lagoon at Sandgate. No other *A. maidenii* had any further Indigo Flash caterpillars. The caterpillar was disinterested in any other Acacia flowers I offered it.

After 4 weeks of my efforts the caterpillar pupated, oozing some reddish fluid while doing so. At time of writing the chrysalis has turned dark and, sadly, looks none too alive. Still I wait in hope.

I'm interested in other people's experience with this species. Have you raised them from caterpillars?

My hypothesis is that this butterfly lays only one or a small number of eggs on a particular plant. It is already listed for 13 plants in the Butterfly Host Plants list, with some others mentioned by Braby. If this is the case it may be a useful strategy for survival as it would be hard for a predator to find a meal of them on any one plant.

Can you tell me more?

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In issue (#17) June 2000 of the BOIC Newsletter Graham McDonald began a 4 part series of "Gardening for Butterflies". As the majority of our members would not have seen this series, and following Frank Jordan's recent Butterfly Gardening days, we thought it pertinent to repeat the article.

PART 1 - GARDENING FOR BUTTERFLIES

Introduction

The flora and dependent fauna of South-east Queensland are suffering a grave crisis. Entire ecosystems are dying by the process of a thousand cuts, so we bystanders hardly notice the changes until it is too late to halt (or reverse) them.

Generally speaking, our native plants (over 400 of which are butterfly host species) are being replaced by exotic cultivars from overseas. Many of these are not utilised in any way by our local fauna which has come to co-evolve alongside the native plants which are critical for their very survival.

Butterflies and other insects form the basis of a complex web of life which can continue in a simplified form if a few of its links are broken, but will ultimately collapse, bringing us down with it, especially if a majority of links are severed.

To preserve our natural heritage, we must select those indigenous native plants which form the basis of our local food chains and grow them in our gardens, parks and degraded reserves.

Most people are probably beginning to tire of the lack of uniformity and sterile nature of exotics, not to mention their high maintenance and dependence on water, fertilisers and pesticides. Soon there will be a move away from these plants towards the local species which after all are interesting, ornamental and perfectly adapted to the local conditions of soil and climate of the area.

Many people enjoy watching butterflies visit their gardens, if only for a brief fly-through, but do not know how to keep them there, or set up a breeding colony of many species of these spectacular insects.

They do not appreciate the link between a butterfly and a native plant. Some people want to have perfect plants as well as butterflies – a contradiction in terms.

We have to become better educated, more tolerant of occasionally chewed plants and appreciative of the virtues of our indigenous plants and not just pass them by as another piece of untidy scrappy bush to be cleared out and replaced by some 'prettier' plant from another region.

Getting Started

The first move is to buy a block of land or join a bushcare group to work on a reserve or park. You then have some ownership over what happens to the garden / bushland.

Secondly, carry out some background research into which butterflies you are likely to attract in your area. Some species are very local and do not fly very far, (e.g. White-banded Plane). Others can migrate or fly some kilometres to find larval host plants, (e.g. Richmond Birdwing).

Thirdly, in your local area track down those plant species which are used by the local butterflies as larval food plants and adult nectar plants. (Many butterfly books contain such information.)

Finally, select those species of plants which are suited to your garden. You will have to consider the following points:

(a) The ultimate size of the plants, e.g. a large tree is unsuited to a small garden.

(b) The soil type preferred by the plant. Your soil can be improved in drainage by raising the beds or altered by the addition of sand, compost, lime etc.

(c) The form of the plant and its life cycle, e.g. an annual may need to be replaced often or allowed to seed freely in the garden.

(d) The sun / shade aspect of your garden, e.g. if you have a rainforest garden established, you will not be able to grow sun-loving annuals. If your garden is mainly

in full sun you will have more choices of plant selection. Most gardens have many microclimates so a given plant can be slotted into a preferred position.
(e) The availability of the plants. You may have to visit specialist nurseries as most nurseries do not stock the desired species.

You now have the basics for butterfly gardening and can look forward to attracting butterflies within weeks of planting your host plants.

Example - We planted *Hygrophila angustifolia* at our Hinterland Regional Park on a moist depression and only a few weeks later we witnessed the Tiny Grass Blue (*Zizula hylax attenuata*) flying around the plants.

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Ladybird Beetle Photo Gallery

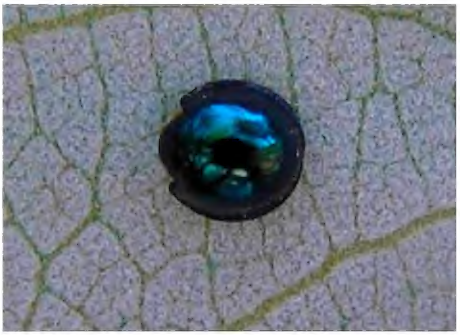
Tortoise-shelled Ladybird (*Harmonia testudinaria*) Photo Jenny Thynne

Newly emerged Common Spotted Ladybird (*Harmonia conformis*) Photo Jenny Thynne

Transverse Ladybird (*Coccinella transversalis*) Photo Louise Sorensen

Netty Ladybird (*Harmonia testudinaria*) Photo Russel Denton

Orange-spotted Ladybirds (*Orcus australasiae*)
Photo Russel Denton



Steelblue Ladybird (*Halmus chalybeus*)
Photo Russel Denton

Striped Ladybird (*Micraspis frenata*)
Photo Russel Denton

28 spotted Ladybird (*Epilachna vigintioctopunctata*) Photo Erica Siegel

Variable Ladybird (*Coelophora inaequalis*)
Photo Erica Siegel

Variable Ladybirds (*Coelophora inaequalis*)
Photo Erica Siegel

Variable Ladybird (*Coelophora inaequalis*)
Photo Erica Siegel

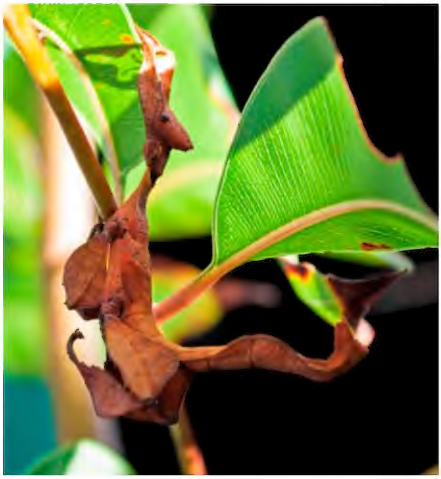
Yellow Shouldered Ladybird (*Apolinus lividigaster*) Photo Jenny Thynne

Fungus-eating Ladybird (*Illeis galbula*)
Photo Erica Siegel

Larva of the Fungus-eating Ladybird
Photo Helen Schwencke

Adult and pupae of the Fungus-eating Ladybird
Photo Helen Schwencke

Larva of Variable Ladybird with aphids
Photo Jenny Thynne



I was very excited to find this Spiny Leaf Insect (*Extatosoma tiaratum*) that hatched from the eggs I got from the club in July last year.

Jill Fechner Photo Jill Fechner

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Pale Ciliated Blue (*Anthene lycaenoides*) – *Amelia Pasieczny*

Earlier this year Helen (Schwencke) and I were raising and feeding lots of caterpillars to better document and photograph their respective life-cycles. In our garden and around West End were numerous Blue Tigers (*Tirumala hamata*), Common Crows (*Euploea core*), Evening Browns (*Melanitis leda*), Yellow and Lemon Migrants (*Catopsilia gorgophone* and *C. pomona*).

While collecting fresh food, I came across a mysterious chrysalis. It was most likely a Small Dusky Blue (*Candalides erinus*) or a Blotched Dusky-blue (*Candalides acasta*) (since the butterfly didn't emerge properly the id could not be confirmed).

The chrysalis was found by chance on some Corky Milk-vine (*Secamone elliptica*) which was in a tangle of *Senna gaudichaudii*, Corky Passion vine (*Passiflora suberosa*), Slender Grape (*Cayratia clematidea*) and *Plumbago zeylanica*, with Dodder (*Cassytha pubescens*) growing through and over other plants. This made it hard to find more caterpillars to complete observing and photographing their life-cycle.

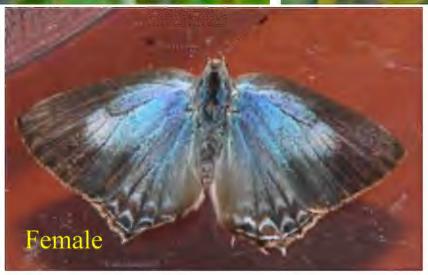
While I was searching for fresh Senna growth that didn't have any new Yellow Migrant eggs or caterpillars, by this point in the season we had raised more than a dozen, I spotted an unknown little green caterpillar on the Senna's flower buds, the attending ants having given it away.

After raising a few to adulthood, it seemed like we had a Pale Ciliated Blue. It took us a while to settle on that identification as they were so far out of their recorded range (according to Michael Braby's "The Complete Field Guide to Butterflies of Australia"). We also found evidence of them on some of the other recorded host plants growing in West End. Their presence in Brisbane had been noted earlier in the year by Russell Mayo in "Interesting new locations for *Anthene lycaenoides*

godeffroyi (Semper) in Southern Queensland" in Entomological Society of Queensland News Bulletin, Volume 42, Issue 10, February 2015 p. 189.

I caught the butterfly emerging from the chrysalis.
To see the video visit: https://www.youtube.com/watch?v=mCxeRuO6lhY

Images with this article: egg, larva, pupa, adults: female open wings (slightly deformed), male open wings. Butterflies are alive though anaesethised.



Photos Amelia Pasieczny

YOU ASKED

Caterpillars feeding on Sundew: Droseraceae – *Harold McQueen and Don Herbison-Evans*

We would like to report the finding in April 2015 of two caterpillar species that have been found feeding on Sundew (probably *Drosera burmannii*, Droseraceae) at North Maclean, Queensland.

Figure one shows a small smooth pale brown caterpillar with some sparse white hairs. The caterpillar has a brown head, and an abdomen with several darker nodules on the back of each segment, and three faint greenish dorso-lateral lines. Its length is about 0.5 cm. It is possibly a Plume Moth larva, perhaps a *Buckleria* species in Pterophoridae. Several species in this genus have been found feeding on Droseraceae in America, Europe and Asia (Matthews, 2009).

Figure two shows a dark brown caterpillar in a case, which has a length of about 2 cm. The case is cylindrical, tapering slightly toward the head end. The case appears to be entirely covered in fine particles of vegetation.

Fig. 3

Figure three shows a close-up of the head and thorax of this caterpillar. The thorax seems to show two flat plates, one each side.

Is this caterpillar a species of Case Moth in Psychidae?

Sundews are renowned for using their leaves to catch and eat insects. It is interesting that these two species of Lepidoptera seem to encounter no problems in feeding on the leaves.

Photos Don Herbison-Evans

Reference:

Matthews, Debbie L.The Sundew Plume Moth *Buckleria parvulus* (Barnes and Lindsey) (Lepidoptera: Pterophoridae), Southern Lepidopterists' News, Volume 31, Number 2 (2009), Page74. http://www.plumemoth.com/Buckleria.pdf

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The Case of Two Naked Cases (Psychidae : Lepidoptera) –

Don Herbison-Evans and *Peter Hendry*

Many of the larvae of the moth family Psychidae live in a portable case or bag. Some of our readers may be familiar with the species in this family, many of which ornate their shelters with bits of twigs or leaves. Currently, there is thought to be one species which leaves its shelter devoid of any ornamentation. In the past three such species appear to have been described in the literature: *Thyridopteryx nigrescens* Doubleday, 1845, (now *Hyalarcta nigrescens*) *Oiketicus herrichii* Westwood 1855, and *Hyalarcta ptiloclada* Meyrick & Lower 1907. Today all three species are regarded as one species, *Hyalarcta nigrescens*.

The case of the caterpillar of *H. nigrescens* was originally described by Edward Doubleday simply as "*similar in form and structure to that of its American congener, the ephemeraeformis Steph.*"

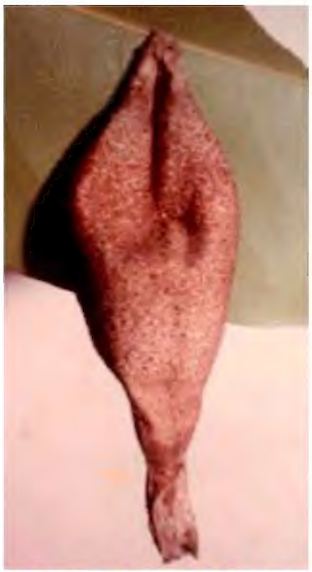
Presumably, he is referring to *Sphinx ephemeraeformis* Haworth 1803, which was placed in *Thyridopteryx* by Stephens in 1835. However, the caterpillar of *Thyridopteryx ephemeraeformis* covers its bag with bits of leaves and twigs. So it is not clear that it is a species with a naked larval case.

The case of the caterpillar of *O. herrichii* was described by John Westwood as "*leather-like case destitute of twigs or leaves*", and illustrated in his drawing as indeed bereft of decoration, but having a series of ribs.

Edward Meyrick and Oswald B. Lower, in their 1907 *Revision of the Australian Psychidae*, synonomised *H. nigrescens* Doubleday 1845 and *O. herrichii* Westwood 1855, and described the case of this single species, *H. nigrescens,* as follows; "*30-38 mm. in length, 30 mm. in circumference at greatest breadth ; greyish-ochreous, minutely spotted with blackish; cylindrical, moderately smooth, not ornamented with leaves or twigs, tapering at both ends, lower end more elongate and narrow. Surface marked with seven longitudinal ridges, by their projections forming concavities between the ridges, which gives a transverse section the appearance of a heptagon with concave sides. The case is fixed by its upper end to the food-plant by a strong, short, thick appendage, which is sometimes looped around the twig to which it is attached*".

They also noted the larva feed on *Eucalyptus*. It is interesting to note that both forms of attachment are illustrated in Don's photos.

Meyrick and Lower also described and named *Hyalarcta ptiloclada*, but noted that the case and larva were unknown. It too is now regarded a synonym of *H. nigrescens.*



There are two common sorts of casemoth caterpillars with naked cases found in Australia, both of which feed on Eucalyptus, and have cases that can grow to a length of about 4 cm. One has a ribbed case, and one has a smooth case.

The lead author only succeeded in getting an adult from one of these: one male from the ribbed case illustrated here. He is tempted to suggest that there are two distinct

Australian Psychidae species with naked cases, one with ribs and one without. But, maybe they are the same species and the females have unribbed cases, or maybe the caterpillars just randomly rib or do not rib their cases. We have not managed to rear enough specimens successfully to decide this.

A confusing factor in all this is the fact that several web sites refer to *Hyalarcta nigrescens* as the ribbed case moth and *Oiketicus herrichii* as the smooth case moth. As stated above Westwood;s drawings showed *O. herrichii* with ribs and both species are now considered to be one, *Hyalarcta nigrescens*. So I guess the real question is what is in the smooth case.

The distribution of *Hyalarcta nigrescens* is coastal regions from S.E. Queensland through New South Wales, Victoria and into South Australia.

To help us solve this mystery can you please contact the editor if you have raised any larva through to adult from these types of naked cases. If you do find any of these cases and try to breed the larva through, record as much information as you can, take photos and above all keep specimens of both the cases and adult moth, for without them a positive identification cannot be made and more so if a new species needs to be described.

Photos Don Herbison-Evans

REPORTS

Report on moth day at Peter's – *Peter Hendry*

On Saturday, 22nd August 2015, 10 members and guests arrived throughout the afternoon to listen to my talk and partake of a barbecue and light trap. I am grateful for those who put up with my stumbling over scientific names during my talk on the history of the Anthelidae. There were some interesting specimens that turned up and caused problems trying to place them. One of interest was a specimen from Wes Jenkinson which, at the time, we were inclined to treat as some sort of aberration of *Anthela excellans*. I contacted Ted Edwards who kindly replied with the following;

Wes's *Anthela* species – Photo Wesley Jenkinson

"*Photo 2 (Wes's from Upper Lockyer Valley) is interesting. It seems related to Anthela excellens but lacks the grey head and does not seem to vary at all. We have a short series of males but the female is unknown. All the specimens I know of come from the upper Lockyer Valley where Ian Common collected it occasionally."*

So possibly it's a rare species but unnamed. I'm sure everyone enjoyed the meal and company. The light trap was fairly well attended by several species enabling Graham McDonald to increase his photo portfolio.

I would like to thank all those who attended and made my efforts worthwhile and a special thanks to my wife Bev who went to a lot of trouble to put on a magnificent spread.

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An Introduction to Butterfly Gardening – *Alisha Steward*

Our youngest BOIC member, Stanley, looking for caterpillars on a Paper Daisy. Stanley attends all of our meetings. Photos Alisha Steward

On Saturday. the 24th of October 2015 a handful of keen BOIC members met up at the Jane Street Community Garden, West End, to learn about butterfly gardening. The afternoon was hosted by the enthusiastic Frank Jordan, co-author of "Create More Butterflies". Frank talked about the importance of butterfly host plants and brought along some potted plants to show us (even giving away some plants to lucky members!). The plants were accompanied by laminated information sheets to teach us about which butterfly species they attract. Frank made the distinction between butterfly host plants that are food for larvae, and butterfly attracting plants that supply nectar to the adults. We then went for a wander around the community garden to look at native and exotic plants that butterflies use. The afternoon was overcast with the odd sprinkle of rain, and as a result only a few butterflies were seen on the wing. Several larvae were encountered, however. Frank thoroughly answered the questions that our members had for him, and he was also well-equipped with a selection of books that members could refer to.

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

Macro Photography Field Day at Mt. Cotton with Erica Siegel

Learn techniques for capturing the beauty and secret lives and identities of the many insects that call our gardens and bushland home.

When: **Saturday 30th January 2016**. Gather at 8am for an 8.30am start, finish at 11.30am, to be followed by refreshments by the creek

To Bring: Camera and macro lens, lunch or food to share, chair, water bottle – tea making facilities available.

Wear: Covered shoes, hat/sunscreen,

RSVP: Bookings are essential as places are limited. **Reply before 23rd January**. Phone Lois on 3206 6229 for bookings and direction to location.

Planning and General Meeting

What: Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. Following the meeting, and a lunch break, Russel Denton will lead us through part of the Boondall Wetlands. We are likely to encounter many invertebrates including lots of butterflies, Leaf beetles, Ladybird beetles and spiders. All members are welcome as this activity is also a general meeting of members.

When: **Saturday 13th February, 2016, 10am**

Where: Sandgate Town Hall, corner of Cliff and Seymour Streets, Sandgate.

Bring: Your own cup as crockery and cutlery are not available at this venue, your lunch, sun protection and probably mosquito repellent!

RSVP: Email secretary@boic.info

Editorial continued from page 3 –

Thank you to all who have contributed to our magazine this year. Please continue to share. We value each and every piece of information we receive and it gives us great pleasure to pass it on to our eager members. Observations of our natural world are very important, but it is the sharing of those observations, in word and image, that makes all the difference.

Planning is underway for excursions in 2016 so if you have a fabulous spot in your area for an outing please let us know.

The committee wishes all our members a safe and joyous holiday season and very best wishes for the New Year.

Kind regards

Jill Fechner – BOIC Secretary

DISCLAIMER

The magazine seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The magazine is a platform for people, both amateur and professional, to express their views and observations about invertebrates. These are not necessarily those of the BOIC. The manuscripts are submitted for comment to entomologists or people working in the area of the topic being discussed. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGMENTS

Producing this magazine is done with the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provided the cover painting
- Daphne Bowden who works on layout, production and distribution
- John Moss, Andrew Atkins, Martyn Robinson, Anne Dollin and Ross Kendall for scientific referencing and proof reading of various articles in this issue of the magazine

ARE YOU A MEMBER?

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Membership fees are $30.00 for individuals, schools and organizations**. If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership number and surname e.g. **234 Roberts.**

Butterfly and Other Invertebrates Club Inc.
PO Box 2113
RUNCORN Q. 4113

Next event – Macro Photography Field Day at Mt. Cotton with Erica Siegel – 30th January, 2016 – see programme for details